

AMENDMENTS TO THE CLAIMS

Following is the current status of the claims:

Claim 1 (original): A light generator comprising:

- a blue laser for generating a first beam of blue light;
- a first beamsplitter optically coupled to the blue laser for splitting a second beam of blue light from the first beam of blue light;

- a second beamsplitter optically coupled to the first beamsplitter for splitting a third beam of blue light from the first beam of blue light;

- a first upconversion laser optically coupled to the second beamsplitter for generating a beam of green light from the third beam of blue light; and

- a second upconversion laser optically coupled to the second beamsplitter for generating a beam of red light from the first beam of blue light.

Claim 2 (original): The light generator of Claim 1 wherein at least one of the blue laser, the first upconversion laser, and the second upconversion laser is a solid-state laser.

Claim 3 (original): The light generator of Claim 2 wherein each of the first and second upconversion lasers comprises:

- a laser gain element;
- a focusing lens optically coupled to the laser gain element for focusing blue light onto the laser gain element;
- an input coupler optically coupled to the focusing lens for transmitting blue light and for reflecting red light or green light; and

- an output coupler optically coupled to the laser gain element for totally reflecting light generated by the laser gain element back to the laser gain element.

Claim 4 (original): The light generator of Claim 3 wherein the output coupler reflects pump energy that is not absorbed by the laser gain element back to the laser gain element to increase optical efficiency.

Claim 5 (original): The light generator of Claim 3 wherein the laser gain element is a Pr:YALO crystal.

Claim 6 (original): The light generator of Claim 3 wherein the input coupler is a plane mirror or a reflective coating on an end face of the laser gain element adjacent to the focusing lens.

Claim 7 (original): The light generator of Claim 1 further comprising a mirror optically coupled to the first beamsplitter for directing the second beam of blue light in a direction substantially parallel to the first beam of blue light.

Claim 8 (original): The light generator of Claim 1 further comprising a mirror optically coupled to the second beamsplitter for directing the third beam of blue light in a direction substantially parallel to the first beam of blue light.

Claim 9 (original): The light generator of Claim 1 further comprising at least one optical modulator to modulate at least one of the second beam of blue light, the beam of green light, and the beam of red light.

Claim 10 (original): The light generator of Claim 1 further comprising a wavelength selective device optically coupled to the first beamsplitter, the first upconversion laser, and the second upconversion laser for combining the beam of red light, the beam of green light, and the second beam of blue light into a single beam of combined red, green, and blue light.

Claim 11 (original): The light generator of Claim 10 wherein the single beam of combined red, green, and blue light is substantially white.

Claim 12 (original): The light generator of Claim 10 wherein the wavelength selective device is a prism or a diffraction grating.

Claim 13 (original): A light generator comprising:

- a blue laser for generating a first beam of blue light;
- a first beamsplitter optically coupled to the blue laser for splitting a second beam of blue light from the first beam of blue light; and

- an upconversion laser optically coupled to the first beamsplitter for generating a beam of red light and a beam of green light from the first beam of blue light.

Claim 14 (original): The light generator of Claim 13 wherein at least one of the blue laser and the upconversion laser is a solid-state laser.

Claim 15 (original): The light generator of Claim 14 wherein the upconversion laser comprises:

- a laser gain element for generating a beam of red light and a beam of green light from the first beam of blue light;

- a focusing lens optically coupled to the laser gain element for focusing the first beam of blue light onto the laser gain element; and

- an input coupler optically coupled to the focusing lens for transmitting blue light and for reflecting red and green light.

Claim 16 (original): The light generator of Claim 15 wherein the laser gain element is a Pr:YALO crystal.

Claim 17 (original): The light generator of Claim 15 wherein the input coupler comprises a plane mirror or a reflective coating on an end face of the laser gain element.

Claim 18 (original): The light generator of Claim 13 wherein the upconversion laser comprises a wavelength selective element optically coupled to the laser gain element for separating the beam of red light and the beam of green light.

Claim 19 (original): The light generator of Claim 18 further comprising an output coupler optically coupled to the laser gain element to partially reflect the beam of red light or the beam of green light.

Claim 20 (original): The light generator of Claim 19 further comprising an optical modulator to modulate at least one of the second beam of blue light, the beam of green light, and the beam of red light.

Claim 21 (previously presented): A light generator comprising:
a blue laser for generating a first beam of blue light; and
an upconversion laser optically coupled to the blue laser for generating a beam of red light and a beam of green light from the first beam of blue light.

Claim 22 (previously presented): The light generator of Claim 21 wherein the first beam of blue light, the beam of red light, and the beam of green light are combined into a single collinear beam.

Claim 23 (original): The light generator of Claim 22 wherein the single collinear beam is substantially white.

Claim 24 (original): The light generator of Claim 21 wherein at

least one of the blue laser and the upconversion laser is a solid-state laser.

Claim 25 (original): The light generator of Claim 24 wherein the upconversion laser comprises:

 a laser gain element;

 a focusing lens optically coupled to the laser gain element for focusing blue light onto the laser gain element;

 an input coupler optically coupled to the focusing lens for transmitting blue light and for reflecting red and green light; and

 an output coupler optically coupled to the laser gain element for partially reflecting red and green light and transmitting blue light.

Claim 26 (original): The light generator of Claim 25 wherein the input coupler comprises either a plane mirror or a reflective coating on an end face of the laser gain element.

Claim 27 (original): The light generator of Claim 25 wherein the laser gain element is a Pr:YALO crystal.

Claim 28 (original): The light generator of Claim 25 wherein the upconversion laser comprises a first wavelength selective element optically coupled to the laser gain element for separating the red light and the green light.

Claim 29 (original): The light generator of Claim 28 wherein the first wavelength selective element is either a prism or a diffraction grating.

Claim 30 (original): The light generator of Claim 28 wherein the output coupler optically coupled to the first wavelength selective element to partially reflect red light or green light.

Claim 31 (original): The light generator of Claim 30 wherein the output coupler reflects blue light to increase optical efficiency of the laser gain element.

Claim 32 (original): The light generator of Claim 30 further comprising a modulator to modulate at least one of the second beam of blue light, the beam of green light, and the beam of red light.

Claim 33 (original): The light generator of Claim 30 wherein the upconversion laser comprises a second wavelength selective element optically coupled to the output coupler for combining at least two of the beam of red light, the beam of green light, and the beam of blue light into a single beam of combined light.

Claim 34 (original): The light generator of Claim 33 wherein the single beam of combined light is substantially white.

Claim 35 (original): A light generator comprising:

- means for generating a first beam of blue light;

- means for splitting a second beam of blue light from the first beam of blue light;

- means for splitting a third beam of blue light from the first beam of blue light;

- means for generating a beam of green light from the third beam of blue light; and

- means for generating a beam of red light from the first beam of blue light.

Claim 36 (original): The light generator of Claim 35 wherein at least one of the means for generating is a solid-state laser.

Claim 37 (original): The light generator of Claim 36 wherein

each of the means for generating a beam of green light and the means for generating a beam of red light comprises:

- a laser gain element;
- means for focusing blue light onto the laser gain element;
- means for transmitting blue light and for reflecting red light or green light produced by the laser gain element; and
- means for partially reflecting light generated by the laser gain element back to the laser gain element.

Claim 38 (original): The light generator of Claim 37 wherein the means for partially reflecting light generated by the laser gain element back to the laser gain element reflects pump energy that is not absorbed by the laser gain element back to the laser gain element to increase optical efficiency.

Claim 39 (original): The light generator of Claim 37 wherein the laser gain element is a Pr:YALO crystal.

Claim 40 (original): The light generator of Claim 37 wherein the means for transmitting blue light and for reflecting red light or green light produced by the laser gain element is a plane mirror or a reflective coating on an end face of the laser gain element adjacent to the focusing lens.

Claim 41 (original): The light generator of Claim 35 further comprising means for directing the second beam of blue light in a direction substantially parallel to the first beam of blue light.

Claim 42 (original): The light generator of Claim 35 further comprising means for directing the third beam of blue light in a direction substantially parallel to the first beam of blue light.

Claim 43 (original): The light generator of Claim 35 further comprising means for modulating light optically coupled to at least one of the second beam of blue light, the beam of green light, and the beam of red light.

Claim 44 (original): The light generator of Claim 35 further comprising means for combining the beam of red light, the beam of green light, and the second beam of blue light into a single beam of combined red, green, and blue light.

Claim 45 (original): The light generator of Claim 44 wherein the single beam of combined red, green, and blue light is substantially white.

Claim 46 (original): The light generator of Claim 44 wherein the means for combining is a prism or a diffraction grating.

Claim 47 (previously presented): A light generator comprising:
 means for generating a first beam of blue light;
 means for splitting a second beam of blue light from the first beam of blue light;
 means for generating a beam of red light from the first beam of blue light; and
 means for generating a beam of green light from the first beam of blue light.

Claim 48 (original): The light generator of Claim 47 wherein at least one of the means for generating is a solid-state laser.

Claim 49 (original): The light generator of Claim 48 wherein the means for generating a beam of red light and a beam of green light from the first beam of blue light comprises:
 a laser gain element;

means for focusing the first beam of blue light onto the laser gain element; and

means for transmitting blue light and for reflecting red and green light produced by the laser gain element.

Claim 50 (original): The light generator of Claim 49 wherein the laser gain element is a Pr:YALO crystal.

Claim 51 (original): The light generator of Claim 49 wherein the means for transmitting comprises a plane mirror or a reflective coating on an end face of the laser gain element.

Claim 52 (original): The light generator of Claim 47 wherein the means for generating a beam of red light and a beam of green light comprises means for separating the beam of red light and the beam of green light.

Claim 53 (original): The light generator of Claim 52 further comprising means for partially reflecting the beam of red light or the beam of green light.

Claim 54 (original): The light generator of Claim 53 further comprising means for modulating at least one of the second beam of blue light, the beam of green light, and the beam of red light.

Claim 55 (previously presented): A light generator comprising:

means for generating a first beam of blue light and a second beam of blue light;

means for generating a beam of red light from the first beam of blue light; and

means for generating a beam of green light from the first beam of blue light.

Claim 56 (original): The light generator of Claim 55 wherein the second beam of blue light, the beam of red light, and the beam of green light are combined into a single collinear beam.

Claim 57 (original): The light generator of Claim 56 wherein the single collinear beam is substantially white.

Claim 58 (original): The light generator of Claim 55 wherein at least one of the means for generating is a solid-state laser.

Claim 59 (original): The light generator of Claim 58 wherein the means for generating comprises:

- a laser gain element;
- means for focusing blue light onto the laser gain element;
- means for transmitting the blue light and for reflecting red and green light produced by the laser gain element; and
- means for partially reflecting the red and green light produced by the laser gain element and for transmitting blue light.

Claim 60 (original): The light generator of Claim 59 wherein the means for transmitting comprises either a plane mirror or a reflective coating on an end face of the laser gain element.

Claim 61 (original): The light generator of Claim 59 wherein the laser gain element is a Pr:YALO crystal.

Claim 62 (original): The light generator of Claim 59 wherein the means for generating a beam of red light and a beam of green light from the first beam of blue light comprises means for separating the red light and the green light.

Claim 63 (original): The light generator of Claim 62 wherein the means for separating the red light and the green light is either

a prism or a diffraction grating.

Claim 64 (original): The light generator of Claim 59 wherein the means for partially reflecting the red and green light produced by the laser gain element and for transmitting blue light is optically coupled to the means for separating the red light and the green light to partially reflect only one of the red light or the green light.

Claim 65 (original): The light generator of Claim 64 wherein the means for partially reflecting the red and green light produced by the laser gain element and for transmitting blue light reflects blue light to increase optical efficiency of the laser gain element.

Claim 66 (original): The light generator of Claim 64 further comprising means for modulating at least one of the second beam of blue light, the beam of green light, and the beam of red light.

Claim 67 (original): The light generator of Claim 64 wherein the means for generating a beam of red light and a beam of green light comprises means for combining at least two of the beam of red light, the beam of green light, and the beam of blue light into a single beam of combined light.

Claim 68 (original): The light generator of Claim 67 wherein the single beam of combined light is substantially white.